STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION

CONTRACT CHANGE ORDER MEMORANDUM

TO: Tony Anziano, Program Manager /	FILE: **E.A.** 04 - 0120F4
FROM: Darryl Schram, Senior TE	**CO-RTE-PM** SF-80-13.2/13.9
	FED. NO.
CCO#: **285** SUPPLEMENT#: **0** Category Code: **BZZZ**	CONTINGENCY BALANCE (incl. this change) **$95,731,935.27**
COST: **$325,000.00** INCREASE ☑ DECREASE ☐	HEADQUARTERS APPROVAL REQUIRED? ☑ YES ☐ NO
SUPPLEMENTAL FUNDS PROVIDED: **$0.00**	IS THIS REQUEST IN ACCORDANCE WITH ENVIRONMENTAL DOCUMENTS? ☑ YES ☐ NO
CCO DESCRIPTION: Shipping HS Bolts	**PROJECT DESCRIPTION:** CONSTRUCT SELF-ANCHORED SUSPENSION BRIDGE

Original Contract Time:	Time Adj. This Change:	Previously Approved CCO Time Adjustments:	Percentage Time Adjusted: (including this change)	Total # of Unreconciled Deferred Time CCO(s): (including this change)
2490 Day(s)	**0** Day(s)	**501** Day(s)	**20** %	**3**

THIS CHANGE ORDER PROVIDES FOR:

Shipping high strength bolt assemblies to Pier 7 in Oakland by air freight.

During installation and initial bolt tensioning of the cable bands it was discovered that the measured gap between the male/female halves of several cable bands was smaller than anticipated. Previously, confirmation of cable band dimension had been verified and agreed to during the cable band friction test conducted at Pier 7. However, the cable band diameter of the North Main Span was compacted to a smaller diameter than what was observed during the cable band friction test; therefore, the Department became concerned about the small gap condition between the male/female halves of the cable band. An evaluation was performed and the Department issued Contract Change Order (CCO) 247, directing the Contractor to modify a number of the cable bands to increase the gap size to account for the expected cable band gap reductions associated with the expected reduction in cable diameter that would take place during load transfer as the Main Cable is loaded.

Subsequently, as more information became available, field observations showed locations of several cable bands where gaps had closed to less than 5 mm. This was due primarily to the reduction in Main Cable diameter, commensurate with the elongation of the Main Cable as it was loaded. However, field staff also witnessed further cable compaction (i.e.: reduction in cable diameter and cable band gaps) from the continual cable band bolt tensioning effort directed in CCO 264. In addition, the Main Cable may further elongate and reduce in diameter as it receives additional loading from the application of the epoxy AC wearing surface and the opening to vehicular "live load" traffic. Additional cable band bolt tensioning may be required to maintain the required cable band hoop stress (i.e.: sliding friction). With the additional tensioning, if the cable band gaps were to close and the cable band halves come into contact, a loss of hoop stress might be realized, requiring remedial action to maintain the required sliding friction.

To address this issue and to prevent schedule impacts to the Seismic Safety Opening (SSO) milestone, the Department is implementing multiple risk management strategies. CCOs 271 and 274 will procure four (4) additional cable bands and sixteen (16) supplemental cable band clamps, respectively. CCO 273 will procure additional higher strength cable band bolts. In the event a cable band were to close, the cable bands and supplemental cable band clamps can be placed beneath the existing cable bands to bolster frictional resistance. Alternatively, frictional resistance in the cable band clamps can be increased as a whole by replacing the existing bolts with higher strength bolts. In this instance, the bolt tension in areas of a cable band with sufficient gap space can be increased to make up for the areas where bolt tension must be allowed to decrease to prevent a gap closure. CCO 280 will procure the tensioning equipment required to install the higher strength bolts and CCO 285 will provide for the shipping of the CCO 273 bolts.

This change order provides shipping for finished high strength bolt assemblies by air freight to the project site as soon as available. This will involve multiple shipments. The Contractor is being directed to accelerate shipping to prevent impacts to the SSO milestone.

The Risk Register has captured the risk associated with this type of issue. Risk Item 1.2, "Schedule Delays to Seismic Safety Opening," captures the risk to schedule, and Risk Item 75, "Cable Field Installation: Issues with Load Transfer" and Risk Item 100, "Cable Field Installation: Cable Wrapping and Cable Bands," address potential direct costs.

The total cost of this change order is $325,000.00 force account, which can be financed from the contingency fund. A detailed cost estimate is on file.

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No time adjustment is warranted as this change order does not affect the controlling operation.

This change order has concurrence from William Casey (Supervising TE) and Rich Foley (HQ Oversight).

CONCURRED BY:			
Construction Engineer:	William Casey, Sup TE	Date	1/8/13
Bridge Engineer:		Date	
Project Engineer:		Date	
Project Manager:		Date	
FHWA Rep.:		Date	
Environmental:		Date	
Other (specify):	HQ, Rich Foley	Date	1/9/13
Other (specify):		Date	
District Prior Approval By:		Date	
HQ (Issue Approve) By:		Date	
Resident Engineer's Signature:		Date	1/9/13

ESTIMATE OF COST

	THIS REQUEST	TOTAL TO DATE
ITEMS	$0.00	$0.00
FORCE ACCOUNT	$325,000.00	$325,000.00
AGREED PRICE	$0.00	$0.00
ADJUSTMENT	$0.00	$0.00
TOTAL	$325,000.00	$325,000.00

FEDERAL PARTICIPATION

☐ PARTICIPATING ☐ PARTICIPATING IN PART ☑ NONE
☐ NON-PARTICIPATING (MAINTENANCE) ☐ NON-PARTICIPATING

FEDERAL SEGREGATION (if more than one Funding Source or P.I.P. type)
☐ CCO FUNDED PER CONTRACT ☐ CCO FUNDED AS FOLLOWS

FEDERAL FUNDING SOURCE	PERCENT